

Name key Block _____ Test Date _____

Unit 3 Study Guide: Chemical Reactions
Review quizzes given this unit also

1. In a chemical formula, the number of each type of atom in the compound is shown by numbers called Subscripts.
2. A group of covalently bonded atoms that act together as one charged atom is a(n) Polyatomic ion. Example: BaSO_4 .
3. The elements that make a compound and the exact number of atoms of each element in a unit of the compound can be shown in a chemical formula.
4. A chemical bond that occurs when atoms share electrons is a(n) covalent.
5. The oxidation number tells you how many electrons an atom must gain, lose, or share to become stable.
6. What is the total number of atoms in the compound $\text{Ca}(\text{ClO}_3)_2$? 9
7. What is the name of the compound with the chemical formula NaCl ? Sodium Chloride (salt).
A(n) balanced chemical equation has the same number of atoms of each element on each side of the equation.
9. Each substance on the right side of the arrow in a chemical equation is a product.
10. What type of reaction is shown in the following chemical equation: $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$? Synthesis
11. When one element replaces another element in a compound; the reaction is a Single Replacement reaction.
12. The breaking down of a substance into two or more simpler substances is a decomposition reaction.
13. Each substance to the left of the arrow in a chemical equation is a(n) reactant.
14. Numbers that precede symbols and formulas in a chemical equation are called Coefficients.
15. According to the law of conservation of mass, how does the mass of the product in a chemical reaction compare to the mass of the reactant? Masses are equal
16. A chemical reaction in which two or more substances combine to form another substance is called a Synthesis reaction.
17. According to the law of conservation of mass, if two atoms of Hydrogen are used as a reactant, how many atoms of Hydrogen must be a part of the product? two
18. What type of reaction is shown in the following chemical equation: $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$? decomposition

19. When most chemical reactions take place, some Chemical Bonds in the reactants must be broken, a process that requires energy.
20. The kind of bond that forms between atom A and atom B if atom A loses electrons and atom B gains electrons. ionic bond
21. The kind of bond that forms when metals and nonmetals combine. ionic bonds
22. The kind of bond that forms when nonmetals combine. covalent
23. The kind of bond that is formed between carbon and oxygen. covalent
24. The kind of bond that forms between magnesium and chlorine. ionic
25. When an atom "lends" one or more electrons, it becomes a positively charged ion, but when an atom "borrows" electrons it becomes a negatively charged ion.
26. A compound is described by a chemical formula.
27. If atom A has 2 electrons in its outer shell, it will have the tendency to lend 2 electrons.
28. Temperature is the degree of hotness or coldness in a sample of matter.
29. Coefficients can be changed in a chemical equation to balance it. Subscripts cannot be changed.
30. What type of reaction is $2K + 2H_2O \rightarrow 2KOH + H_2$? Single Replacement
31. What type of reaction is $Pb(NO_3)_2 + 2KI \rightarrow PbI_2 + 2KNO_3$? Double replacement
32. A chemical reaction that releases energy is an exothermic reaction.
33. A chemical reaction that takes in energy is an endothermic reaction.
34. Label each of the following chemical reactions as an endothermic or exothermic reaction. Please mark X for exothermic and N for endothermic.
- | | |
|-------------------|----------|
| Burning candle | <u>X</u> |
| Ice cubes forming | <u>X</u> |
| Melting ice cream | <u>N</u> |
| Baking a cake | <u>N</u> |
| Burning sugar | <u>X</u> |
35. Balance the following equation: $2KI + Cl_2 \rightarrow 2KCl + I_2$
36. Balance the following equation: $N_2 + O_2 \rightarrow N_2O$